



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,598	02/15/2001	Kiyokazu Moriizumi	010153	4350

23850 7590 01/31/2002

ARMSTRONG, WESTERMAN & HATTORI, LLP  
1725 K STREET, NW.  
SUITE 1000  
WASHINGTON, DC 20006

EXAMINER

VU, QUYNH NHU H

ART UNIT	PAPER NUMBER
----------	--------------

2827

DATE MAILED: 01/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/783,598

Applicant(s)

MORIIZUMI, KIYOKAZU

Examiner

Quynh-Nhu H. Vu

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 7-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicant's election without traverse of Group I, Species A (claims 1-6) in Paper No. 5 is acknowledged.
2. Claims 7-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species 1B-D and Group II, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

### *Specification*

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: No where in the specification of Figs. 1-5 disclose the feature "the insulation material of the insulative substrate includes a material that absorbs a difference in a coefficient of thermal expansion between the insulation material and mounted semiconductor components", as recited in claim 6.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Art Unit: 2827

No where in the specification of Figs. 1-5 disclose the feature "the insulation material of the insulative substrate includes a material that absorbs a difference in a coefficient of thermal expansion between the insulation material and mounted semiconductor components".

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by lino et al. [US 6,207,259].

lino et al. disclose in Fig. 3 an electrically conductive substrate comprising: a plurality of posts (12) (col. 9, lines 22-32) and having an electrically conductive portion (10) that has at least a first surface and a second surface the communicated with each other; and an insulative substrate (A) that supports the plurality of posts. According to the specification, the material of post made of silicon that can be anisotropically etched (page 9, line 2 or line 31). It is noted that silicon is an organic binder or thermosetting resin. Beside that lino et al. disclose the through-hole (10) filled with organic binder (col. 9, lines 29-32). Therefore, the organic binder can be anisotropically etched. Furthermore, the product-by-process limitation "anisotropically etched" has not been give weight in determining the patentability of the device claim. See MPEP §2113.

As to claim 2, the electrically conductive portion (10) comprises an electrically conductive film covering a front surface of the posts.

Art Unit: 2827

As to claim 3, the insulative substrate is composed of organic resin and having low melting point (i.e., polyfunctional have melting points from  $-15$  to  $27^{\circ}\text{C}$ , or TAC have melting point of  $27^{\circ}\text{C}$ ) (col. 5, lines 34-65). Meanwhile, the electrically conductive portion is made of Cu, Sn, Zn, Bi, Ag or an alloy (col. 3, lines 50-61) where is the melting point is higher than the melting point of the insulative substrate.

As to claim 5, a thin film (11) (col. 9, line 23) composed of a wiring pattern and an insulation layer (1a, 1b) is formed on at least the first surface of the front-and-back electrically conductive substrate (A).

8. Claim 4 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over lino et al.

lino et al. disclose in Fig. 3 a pad (2) formed on at least the first surface of the front -and-back electrically conductive substrate (A). lino et al. do not state that the pad for mounting a semiconductor component. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the pad to mounting a semiconductor component for their own purpose. Furthermore, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations pertaining to phrase "for mounting a semiconductor component". Ex Pane Masham, 2 USPQ F.2d 1647 (1987).

#### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2827

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over lino et al.

lino et al. do not state that the coefficient of thermal expansion different between the insulation material of the insulative substrate and the insulation material mounted semiconductor components. In other words, the insulation material of the insulative substrate difference with the insulation material mounted semiconductor components. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ different material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

### **Conclusion**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kubo et al. [US 6,199,273], Pommer et al. [US 6,242,078] and Atakov et al. [US 6,245,996] disclose a substrate comprising a plurality of post and having an electrically conductive portion covering the posts and an insulative substrate that supports the posts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh-Nhu H. Vu whose telephone number is 703-305-0850. The examiner can normally be reached on 7:30-5:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on 703-305-9883. The fax phone numbers for the

Application/Control Number: 09/783,598

Page 6

Art Unit: 2827

organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QNV  
January 22, 2002

*Albert W. Paladini* 1-24-02  
ALBERT W. PALADINI  
PRIMARY EXAMINER